REMARKS

Claims 9 to 14 and 16 are pending.

Applicant respectfully requests reconsideration of the present application in view of this response.

Applicant thanks the Examiner for acknowledging the request for continued examination received on July 6, 2004.

Claims 9 to 14 and 16 were rejected under the first paragraph of 35 U.S.C. § 112 as to the written description requirement.

Claims 9 and 16 provide for the application of metal layers to a first layer and a third layer. In this regard, the Specification specifically provides that:

> The cross-sectional side view in Figure 3a shows a layer sequence 10, 20, 30 which forms a diode. Layer 10 is N-doped and corresponds to the doping of a weakly N-doped substrate used in the manufacture of this component. ***A highly N-doped layer 20 applied to the bottom side of layer 10 is in turn provided with a metallic coating (not shown) on its outside. A strongly P-doped layer 30 is applied to the top side of layer 10.*** Pits 60 defining first areas 40 and second areas 50 are introduced into the top side of the diode. In first areas 40, layer 10 is thicker than in second areas 50, while layer 30 has approximately the same thickness in both areas. Pits 60 are situated in internal area 70 of the diode, while the remaining area of the diode, the edge area, is formed by first areas 40. ***A metallic coating (not shown) is again applied to surface 80 of the diode.***

(See Specification, page 3, lines 4 to 14). Thus, metal layers are applied to a first and third layers of the diode.

Furthermore, in support of this rejection, the Office Action refers to an outside dictionary and contends that "only the coating with metal layers (page 3, lines 10-21 of the Specification) is disclosed, which is a concept fully contained in and narrower than the concept of metallization". Office Action, page 3. It is respectfully noted that the Tenth Edition of Webster's Collegiate Dictionary defines "metallize" as "to coat, treat, or combine with a metal". The Examiner believes that "the application of a metal layer also includes the case in which the object and the metal layer do not have a single common interface, as in the case with coating." Office Action, page 3. Applicant respectfully submits that this belief is erroneous. According to the on-line version of Merriam-Webster's dictionary, at http://www.m-w.com/, the word "apply" means "to lay or spread on <*apply* varnish>". Although the application of metal layers as recited in claims 9 and 16 and as described in the Specification is not limited to laying or spreading, it is respectfully submitted that the concept of metallization as defined does not encompass the concept of applying as recited in claims 9 and 16 and as described in the Specification.

It is therefore respectfully requested that the written description rejection be withdrawn as to claims 9 and 16, and it is respectfully submitted that claims 9 and 16 are allowable.

Claims 8 to 14 depend from claim 9, and are therefore allowable for the same reasons as claim 9.

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being obvious over French Patent Application No. FR 75 24147 to Henry et al. ("Henry") in view of United States Patent No. 5,343,070 to Goodrich et al. (Goodrich).

Claim 16 recites that a semiconductor component includes metal layers that are applied to the first layer and the third layer and that the semiconductor component includes depressions that are formed as pits having at least one of a rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section.

Applicant submits that neither Henry nor Goodrich teaches an application of metal layers to a first layer and a third layer of a semiconductor component nor that depressions are formed as pits having at least one of rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section.

In contrast, Henry purportedly concerns a method for manufacturing PIN diodes and partial mesa diodes. Page 1, lines 1 to 3. Henry states that a diode includes a surface 30 and a side opposite surface 30 that are metallized during a wafer finishing step which involves protection of projecting surfaces 31, 32,33 from metal deposition. Page 3, lines 6 to 14. The diode described by Henry is configured to have a first layer and a third layer that are metallized during a wafer finishing step and does not include metal layers that are applied to the first layer and the third layer. In Henry, the existing layers are themselves metallized in contrast to the feature of applying additional metal layers, as recited in claim 16. Additionally, Henry provides that depressions 111, 112 are formed as pits with rectangular cross sections. Figures 2 and 3. Henry does not provide for depressions that are formed as pits having at least one of a rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section, as recited in claim 16.

Furthermore, Goodrich purportedly concerns a method for making mesa-type PIN diodes.

Abstract, lines 1 to 2. Goodrich states that a diode includes "a substrate having N-type conductivity upon which is deposited an intrinsic material layer" and "[a] junction having P-type conductivity is formed in the top surface of the intrinsic layer and has a predetermined area that is smaller than and may be, preferably, essentially half the area of the top surface." Col. 2, lines 43 to 49. The diode described by Goodrich does not include metal layers that are applied to the first layer and the third layer. Additionally, Goodrich provides that depressions are formed as circular pits. Figures 2 to 4. Goodrich does not provide for depressions that are

formed as pits having at least one of a rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section, as recited in claim 16.

In support of this rejection, the Office Action contends that "[b]ecause Henry et al teach metallization of the surfaces of first and third metal layers (respectively applied to surface 30 and to the surface opposite to 30; see page 3, lines 6-14) it must be stated that Henry et al teach the coating of said first and third metal layers with metal, i.e., teach the application of metal layers, namely the coatings, to the first and third layers as disclosed by Applicant." Office Action,
page 4. Also, the Office Action contends that this rejection refers to the rejection under the first paragraph of 35 U.S.C. § 112 because of the introduction of new matter. As discussed above in regard to the rejection under the first paragraph of 35 U.S.C. § 112, Applicant respectfully submits that there is plain and unequivocal support in the present application such that the statements in the claims 9 and 16 as to application of metal layers cannot and do not represent new matter. Additionally, as discussed above, the concept of metallization as defined does not encompass the concept of applying as recited in claims 9 and 16 and as described in the Specification.

Therefore, in view of this discussion, Applicant submits that claim 16 is patentable over the combination of Henry and Goodrich.

Claims 9, 10, and 12 to 14 stand rejected under 35 U.S.C. § 103(a) as being obvious over Henry in view of United States Patent No. 4,220,963 to Rummenik ("Rummenik") and Goodrich.

Claim 9 recites that a method for manufacturing semiconductor components includes the application of metal layers to a first layer and a third layer and that the depressions are formed as pits having at least one of a rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section.

Applicant submits that Henry, Rummenik, and Goodrich do not teach that metal layers are applied to a first layer and a third layer and that depressions are formed as pits having at least one of a rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section.

As discussed above with the § 103(a) rejection of claim 16, Henry pertains to a diode that includes a surface 30 and a side opposite surface 30 that are metallized during a wafer finishing step and the diode includes depressions 111, 112 that are formed as pits with rectangular cross sections. Page 3, lines 6 to 14, Figures 2 and 3. Also, Goodrich pertains to a diode that includes "a substrate having N-type conductivity upon which is deposited an intrinsic material layer" and "[a] junction having P-type conductivity is formed in the top surface of the intrinsic layer and has a predetermined area that is smaller than and may be, preferably, essentially half the area of the top surface." Col. 2, lines 43 to 49. Goodrich provides that depressions are formed as circular pits. Figures 2 to 4. Additionally, Rummenik

states that "an N-type wafer is provided with two P-type diffused regions on the opposite surfaces of the wafer to define a remaining central N-type region which is extremely thin" such that the diode includes depressions of a circular fashion.
Col. 1, lines 41 to 46, Figures 3a, 3b, 4 and 5.

Therefore, in view of this discussion, Applicant submits that claim 9 is patentable over the combination of Henry, Rummenik, and Goodrich. Claims 10 and 12 to 14 depend from claim 9. Accordingly, claims 10 and 12 to 14 are not rendered obvious for at least the reasons given for the allowability of claim 9.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being obvious over Henry, Rummenik, and Goodrich and further in view of United States Patent No. 5,985,067 to Schmid et al. ("Schmid") or alternatively over Henry in view of Rummenik and Goodrich.

Claim 11 depends on claim 9. Consequently, all claim limitations of claim 9 of the present application that Henry, Rummenik, Goodrich, and Schmid do not teach or suggest (as discussed above in connection with the § 103(a) rejection of claims 9, 10, and 12 to14) are also not taught or suggested with respect to claim 11 of the present application. Neither Henry, Rummenik, Goodrich, nor Schmid teaches a method for manufacturing semiconductor components that includes the application of metal layers to a first layer and a third layer and that depressions are formed as pits having at least one of a rectangular cross section, a pentagonal cross section, a hexagonal cross section and a polygonal cross section. Accordingly, claim 11 is not rendered obvious for at least the reasons given for allowability of claim 9.

In view of all of the above, it is believed that the rejections of claims 9 to 14 and 16 have been obviated, and that all of claims 9 to 14 and 16 are allowable. It is therefore respectfully requested that the rejections be withdrawn and that the present application issue as early as possible.

Respectfully submitted,

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